



MARSHALL STAR

Serving the Marshall Space Flight Center Community

Dec. 18, 2008

James Webb Telescope mirrors chill out at Marshall

By Jennifer Morcone

The first of 18 mirror segments that will fly on NASA's James Webb Space Telescope arrived at the Marshall Space Flight Center on Dec. 9. The mirror will spend the holiday season chilling out in Marshall's world-class X-ray & Cryogenic Facility. Known at Marshall as the XRCF, it is the world's largest X-ray telescope test site and a unique, cryogenic, clean room optical test facility.

"Getting the best performance requires

conditioning and testing the mirrors in the XRCF at temperatures just as cold as in space," said Helen Cole, project manager for Webb Telescope mirror activities at the Marshall Center. "Optical measurements of the mirror segments at cold temperatures will be made and used to create mirrors that will focus crisply in space. This will allow us to see new wonders in our universe."

The James Webb Space Telescope is a large, infrared-optimized space telescope

that will be the premier observatory of the next decade. It will study every phase in the history of our universe, ranging from the first luminous glows after the Big Bang, to the formation of solar systems capable of supporting life on planets like Earth, to the evolution of our own solar system. Its instruments will be designed to work primarily in the infrared range of the electromagnetic spectrum, with some

See Webb Telescope on page 3

We made it!

Marshall Center goes beyond CFC goal

By Jessica Wallace

Thanks to Marshall Space Flight Center team members and retirees, the center has exceeded its \$600,000 goal for the Combined Federal Campaign, contributing a total of \$664,200.

The CFC is an annual initiative by federal and military personnel to raise money for charities. The Marshall Center raised money for Tennessee Valley charities and nonprofit organizations.

The annual fundraiser began Oct. 6. Although the nine-week campaign officially concluded Dec. 12, Marshall civil service employees can continue to donate to CFC by WebTADS until Dec. 29. On-site contractors may give their contributions to their organization leads, or contractors and retirees can mail them to:

David Percival
MSFC RS30
Huntsville, AL 35812

All checks should be made payable to the Combined Federal Campaign. Mailed donations will be accepted through Dec. 31.

Raising money wasn't the only help Marshall provided. About 400 center team members volunteered their time and skills during CFC Community Service Days. Among their activities were building houses with Habitat for Humanity, helping out with track and

field events during the Special Olympics, and delivering magazines or assisting with crafts at the Huntsville Hospital for Women & Children.

On reaching — and exceeding — the Marshall CFC goal, Pat Benson, the center's CFC executive chairperson, said, "We made it! I would like to thank the Marshall family members for sharing your time, talents and treasures during this 2008 CFC campaign. We met our goal — even with a little less participation than last year. Thanks again for making a difference in our community and for those less fortunate."

The Marshall Center is part of the Tennessee Valley Combined Federal Campaign, which is a joint effort with the Army's Aviation and Missile Command, along with other federal agencies at Redstone Arsenal and in surrounding Alabama and Tennessee counties. The center's donations go toward the Tennessee Valley-wide organization's goal of \$2 million.

For more information about CFC, visit <http://cfc.msfc.nasa.gov/>. For a complete list of the charities or nonprofit organizations that benefited from the campaign, visit <http://cfc.msfc.nasa.gov/agencies.html>.

Wallace, an AI Signal Research Inc. employee and the Marshall Star editor, supports the Office of Strategic Analysis & Communications.



'Some of the best technology today is available to U.S. industries because of the work performed by NASA'

An interview with mechanical engineer Sandy Elam of the Engineering Directorate's Combustion Devices Branch

What does the Combustion Devices Branch do? Describe your area of responsibility.

Our group focuses on components that support the combustion process in liquid propulsion engines — nozzles, thrust chambers, injectors, preburners, gas generators and igniters. All liquid

propulsion engines need some or all these components to create the required thrust that allows a vehicle to perform its mission. The type of engines we support range from small thrusters on reaction control systems — which control attitude and steering, to large engines like the space shuttle main engine and new engines being developed for Ares I and V.

We're always trying to develop and implement technologies to make these components more efficient. We evaluate new ways to make components safer, more reliable, longer lasting and easier to fabricate. We try to take advantage of the latest advances in materials and fabrication techniques to create better designs for new and existing engines.

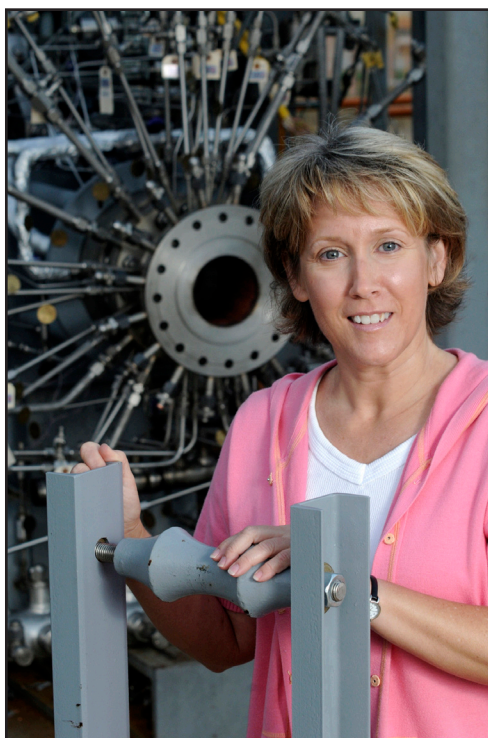
I have an opportunity to perform many in-house tasks that allow technology development. I work with Marshall experts to design, fabricate and test our own components. These efforts are supported by other Marshall groups — materials and fabrication experts and engineers in the test area.

What technology have you developed? What influenced you to develop this technology?

Recently, our group was tasked to see how well liquid oxygen and liquid methane propellant engines would work. Liquid oxygen is often used as an oxidizer in liquid propulsion engines, but research with liquid methane as a fuel had been very limited. If liquid methane performs well, it could be a new fuel candidate for future lunar missions. It could replace more hazardous fuels such as hydrazine.

The initial concern for liquid methane is how easily it ignites and how efficiently it performs in candidate engines. To investigate its

potential, we designed and fabricated injectors to control fuel flow and igniters to initiate combustion. And we hot-fire tested them. All of the work was done in-house, with several Marshall groups participating. We found that not only did the methane ignite easily, but it performed well. The results were so promising that we are performing further tests with additional injector and igniter designs.



Emmett Givens/MSFC

Sandy Elam, an engineer in Marshall's Combustion Devices Branch, pauses at the East Test Area where future liquid oxygen and liquid methane engines are being tested.

How does your expertise help Marshall accomplish its mission? How does it help the space program?

To be successful and progress to additional challenges, we can't just rely on existing technology used in previous programs. It may not be good enough to maintain safe and reliable components for new mission objectives. We must have new technology to overcome each challenge. Throughout the country, new advances are continually being made with materials and fabrication techniques that will help make our new engines more efficient and last longer.

How critical is technology development and cultivation of technologists to the future of Marshall as a successful NASA center?

Marshall is the agency's leader for propulsion development. We are in a

unique position early in a future program to identify technologies with the greatest potential payoff. It's important to be closely involved in the development of new technologies so we can help implement the benefits as effectively as possible. Some of the best technology today is available to U.S. industries because of the work performed by NASA. If we continue to pursue technology issues with practical work at Marshall, I'm certain our expertise will provide even more useful results to benefit government agencies and private industries.

Sanda Martel, an AI Signal Research Inc. employee who supports the Office of Strategic Analysis & Communications, conducted this interview for the Marshall Star.

Endeavour back home

Space shuttle Endeavour arrived home at the Kennedy Space Center, Fla., Dec. 12, riding atop the 747 shuttle carrier aircraft. Endeavour landed at Edwards Air Force Base, Calif., Nov. 30 when weather conditions prevented a Florida landing. When a shuttle lands other than at its home base, it gets a "piggyback" ride back to Kennedy. The ferry flight began Dec. 10 from Edwards and made overnight stops in Texas and Louisiana. Shuttle Endeavour launched Nov. 12 on the 16-day STS-126 mission to the International Space Station.



NASA

Webb Telescope

Continued from page 1

capability in the visible range.

Cryogenic testing will take place in a 7,600-cubic-foot, helium-cooled vacuum chamber, chilling the Webb flight mirror from room temperature down to a frigid minus 414 F. While the mirrors change temperature, engineers will precisely measure their structural stability to ensure they will perform as designed when operating in the extreme temperatures of space.

The Webb Telescope will have a large mirror, 21.3 feet in diameter, made up of 18 segments about 4.9 feet each. The telescope's home in space will be about one million miles from Earth. The completed primary mirror will be over 2.5 times larger than the diameter of the Hubble Space Telescope's primary mirror,

which is 7.8 feet in diameter, but will weigh roughly half as much because it is made of beryllium, one of the lightest applicable metals known to man.

The amount of detail a space telescope can see is directly related to the size of the mirror area that collects light from the universe. A larger area collects more light and can see deeper into space and at a much higher resolution than a smaller mirror. That's why the telescope's primary mirror is made up of multiple mirror segments that form a total area of almost 30 square yards when they all come together.

What's unique about the large primary mirror is that each of the mirrors will have the ability to be moved individually, so that they can be aligned to act as a single large mirror. Scientists and engineers can also correct for visual imperfections after the telescope opens in space, or if any changes occur in the

mirror during the life of the mission.

Precision testing, like this test cycle in Marshall's test facility, provides detailed measurements to aid in the fabrication of the final high-resolution mirrors.

"Beginning this week, we kick off exclusive testing of the James Webb Space Telescope mirrors which will run through 2011," said Jeff Kegley, XRCF testing manager at Marshall. "Our one-of-a-kind facility can provide the environment which allows us to optically measure infinitesimally small changes in the mirrors as they cool."

The Webb Telescope is expected to launch in 2013. It is a joint project of NASA, many U.S. partners, the European Space Agency and the Canadian Space Agency.

Morcone is a member of the Public & Employee Communications Office in the Office of Strategic Analysis & Communications.



Erinnett Given/MSFC

Engineers from Ball Aerospace inspect the first James Webb Space Telescope mirror segment upon its arrival at the Marshall Center for cryogenic testing.

50 years in aerospace: 'I would do it again'

By Rita Roberts

In 1958 it seemed inconceivable that a man might be launched into space or, even more unbelievable, go to the moon!

Even the folks working on the engineering challenges of satellites and rockets in a small cotton-growing town in the South couldn't really grasp the enormity of what they were doing — and that it would soon change history. But putting humans into space and on the moon were exactly what this country did, and a lot of the wondrous work was accomplished in Huntsville, Ala.

Some who still work in the space program after 50 years were in on the "ground floor" when history was being made, changing the landscape of exploration and the destiny of humankind forever.

Ann McNair, director of the Office of Center Operations, first came to work with the Army Ballistic Missile Agency at Redstone Arsenal as a student, helping to determine the orbit of the satellite Explorer I. She helped develop a model for the decay characteristics of a satellite, as there were no orbital decay models then in existence.

John Key, in technical management for the External Tank Project, was hired as a student trainee in the co-op program with the Army Ballistic Missile Agency in 1958. He wasn't really aware of the creation of NASA.

"In May 1960, I was given a letter stating my function was being transferred to NASA's Marshall Space Flight Center," Key said. "It was well known that Dr. Wernher von Braun wanted to put a man in

space and ultimately build a space station. The move to NASA was viewed as a positive step."

Bob Ryan, today an aerospace engineering consultant with AI Signal Research Inc., worked as a high school basketball coach for eight years before he joined the Army Ballistic Missile Agency in 1956. He was transferred to NASA in 1960 when he and other colleagues went to work at the Marshall Center. Ryan remembers one of the big events when the center was created.

"The highlight was when President Dwight D. Eisenhower came here and dedicated the center," Ryan recalls, "He named it the George C. Marshall Space Flight Center."

Remembering important events and taking on challenges

Working in the aerospace industry for 50 years, Ryan has seen many momentous events and has worked through many challenges. One of the first things that still sticks in Ryan's memory is the launch of Explorer I in 1958. "During that time we had already started development of the Saturn I. That work became the basis for development of the Saturn IB and the Saturn V."

McNair remembers the excitement when the SIVB stage of the Saturn V reignited in Earth orbit — a project she worked on. Both McNair and Ryan recall their feeling of exhilaration the first time a NASA astronaut circumnavigated the moon. McNair remembers thinking, "Oh my goodness! We are actually going. How can this be possible?"

Though McNair clearly recalls the big events such as landing on the moon, she also worked on many of the challenges of building a space program. One of her earliest was analytical modeling.

"None of the flight mechanics books on the shelves today existed at that time," McNair recalls. "My boss was translating, from a German text book, the equations of motion to help us develop software to do orbit computations — data that didn't exist at that time."

Change and the future

Key, McNair and Ryan have all witnessed extraordinary change over the last 50 years. The move from the Army Ballistic Missile Agency to NASA

See 50 years on page 5



Marshall Center engineers in Building 4663, which would later become the Huntsville Operations Support Center, or HOSC, receive Doppler data via teletype machines to help determine the orbit of satellites. Ann McNair, at far left, now director of Marshall's Office of Center Operations, was at the "control center" for the Explorer III satellite.

Courtesy photo

50 years

Continued from page 4

came with some changes in controls and working environment, said Key. "The Army even controlled breaks by ringing a bell at the beginning and the end of breaktime. With NASA, you could adjust your schedule to meet the needs of your job."

Ryan said one of the most dramatic changes over the last five decades has been from a design to an operations mindset. "The design mindset means being very creative and innovative," Ryan said. "It needs some processes and documentation, but not as much as an operations mindset. The operations culture drives you to keep building hardware exactly like you have built it and operating within that set of constraints."

The work culture also has adjusted over the years, said McNair. "There was no such thing as a five-day-work-week, but it didn't matter as you were doing something incredible and exciting."

She believes the progression of technology has changed communication at NASA dramatically with the infusion of



John Key of the External Tank Project in the Shuttle Propulsion Office inspects the gaseous oxygen vent seal that interfaces with the top of the space shuttle external tank. The vent seal is part of the ground support equipment at the Kennedy Space Center, Fla. It interfaces with the external tank's oxygen tank, preventing ice formation on the external tank during propellant loading of the shuttle on the launch pad.

things such as e-mail. "There are a lot of positive attributes to new technology, but it also creates issues," McNair said.

"You have to recognize that you are dealing with a wider community of individuals. Communication is easier in a smaller community."

But McNair hastens to point out that "a better product is produced now with participation from a more diverse and broader community."

So why are people who have been here 50 years still here? McNair sums it up: "I think before you decide to leave a place, you need to be headed to a better place. I just don't know any place better."

Ryan also believes there is no place like NASA, especially with the Ares work — that will send explorers to the International Space Station, the moon and beyond — being done at Marshall. He likens it to the feeling people experienced when some of the first rockets were built at Marshall. At 83, he still feels there's work to do. "It's been a great ride. I would do it again — and I'm still doing it."

McNair agrees there is still much to do. "I think we have to explore as a people. Something in all of us will die if we cease to do that. NASA is the agency to make that happen. At NASA we need to appreciate these incredible challenges we have the opportunity to work on."

Roberts, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.



Dennis Keim

Former Marshall Center director Porter Bridwell, left, presents Bob Ryan, then deputy director of the Structures & Dynamics Laboratory, with a 1994 NASA Outstanding Leadership Medal. Today, Ryan is an aerospace engineering consultant with AI Signal Research Inc. of Huntsville.

THE FACE OF MISSION SUCCESS IS:

Jeremy Richard

J-2X engine subsystem manager for Ares Projects

Building NASA's newest propulsion system — designed to power the Ares vehicles into space — is no small task. Jeremy Richard, a J-2X engine subsystem manager at the Marshall Space Flight Center, and his team are eagerly working to design and test hardware as NASA prepares to build the J-2X engine. It is expected to be one of the most efficient space propulsion engines ever built.

What is your educational background?

I am a 1995 graduate of the University of Alabama in Huntsville with a bachelor's degree in electrical engineering.

What are the key responsibilities of your position?

As a J-2X subsystem manager, I oversee a team of 14 civil service and 115 contractor employees. I also serve as a key coordinator between engineers at Marshall, and our prime contractor, Pratt and Whitney Rocketdyne of Canoga Park, Calif. This year, I have participated in 33 requirement and design reviews for the J-2X as well as facilitated frequent technical meetings between NASA engineers and the contractor. The reviews have focused on various J-2X components including valves, the engine control unit, software and instrumentation.

What services does your job provide in support of the center's mission and NASA's goal of exploration?

Our team is responsible for delivering tested and proven hardware necessary to build the J-2X engine which will take us back to the International Space Station and beyond in the coming decade. My goal is to ensure that both NASA and contractor teams deliver a quality product on time and within budget to support Marshall's goal of designing and developing safe, reliable and cost-effective transportation systems to achieve the nation's space exploration goals.

What do you hope to accomplish in your role this year?

Our main focus during the coming year is to successfully complete the design review process for the controls, valves and instrumentation on the J-2X engine. After the design process is completed, we will be able to start fabricating hardware and then move to full-scale testing.

We have also begun construction of our new Hardware in the Loop Lab — a \$2.1 million facility designed for testing engine control units and software. When completed in 2009, this facility will allow for testing of all the avionics, or electrical systems and computer systems involved in the operation of the J-2X engine.

Away from work, how do you like to spend your personal time?

The love of my life, Laura, and I have been married for more than 11 years. We have been blessed with four beautiful children — Micah, 10; Alyssa, 9; Caitlin, 6; and Morgan, 2.

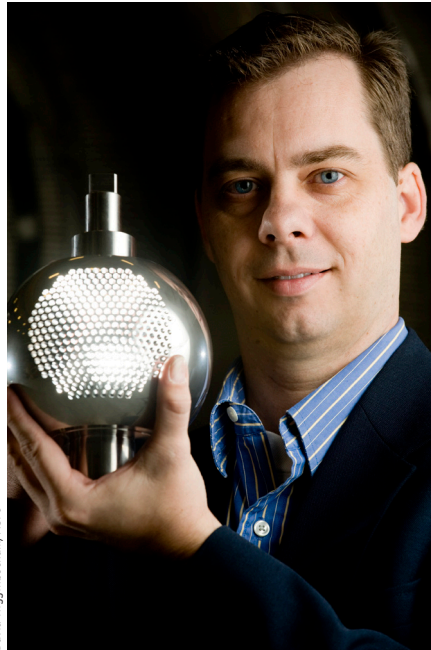
As far as my free time, I can honestly say that my family takes up most of it. I believe that family should come first and foremost. So it doesn't matter if we are watching my son play ball or watching my girls lead cheers, I really enjoy spending time with my kids.

I also am very involved with my church and — something most folks don't know — I am a licensed preacher. I have conducted funerals,

weddings and served as a youth minister for four years. I am still very involved in teaching Bible classes and assisting with youth activities.

Currently we live in Harvest, Ala., but I have a dream of one day owning a small farm. I was raised on a farm and want my kids to experience the freedom of running through the woods, fishing in their own pond, having a horse and raising chickens.

Dunn, an AI Signal Research Inc. employee in the Office of Strategic Analysis & Communications, contributed to this article.



David Higginbotham/MSFC

Jeremy Richard displays what looks like a shiny, silvery Christmas ornament. It is actually a "shower head" designed ball and shaft tested on past development engines. This design is being improved for use in the main valves in the new J-2X engine which will power NASA's Ares rockets. As a J-2X engine subsystem manager in Ares Projects at the Marshall Center, Richard oversees controls, valves and instrumentation.

Marshall Star, Daily Planet to take a break for holiday season

The Marshall Star, printed 50 times each year, will not publish two weeks during the holiday season. This is the last issue for 2008. Publication will resume Jan. 8, 2009, with a special year-in-review edition, highlighting Marshall's 2008 accomplishments.

With that issue, The Star also will debut a new, updated design.

Classified ads still may be submitted during the weeks The Star is not published, but will not run until the Jan. 8 issue.

The Daily Planet will cease publication Dec. 23 and resume Jan. 5.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Marshall Star Ad Form." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Jan. 8, is 4:30 p.m. Thursday, Jan. 1.

Miscellaneous

Maytag dryer, 1 1/2 years old, \$175. 881-3527

Two vinyl power-lift recliners, \$250 each, \$450 for both. 922-1424

Assorted fire wood for sale, price negotiable. 468-9874

Ivory strapless wedding gown, size 6, will e-mail pictures. 656-0569

Bernina 1031 quilter's sewing machine; Bodyguard Executive LS Stair Stepper, best offer. 881-4262

Fireplace bi-fold, therma-glass doors, fire screen, antique brass, fits 36"Wx24"H opening. 881-0457

3.5HP edger, garden/landscaping, \$140 obo. 227-6023

Panasonic DVD video camera, original box, cord for TV, aftermarket charger, manual, \$120. 783-3428

Paradigm Reference Studio Series ADP-450 surround speakers, black, left, right, center, \$425 obo. 843-513-7939

Skateboard ramp, quarter pipe, treated wood, on wheels, \$500. 350-1292

ProForm Cardio Cross Trainer 800, \$250 firm. 714-6609

Toro blower/vacuum, electric, \$45; 42-inch lawn sweeper, for riding mower, \$80. 880-6544

A. Rohrmoser Atomic Micron 423 snow skis, carrying case, \$25; dog kennel, portable, medium, \$30. 527-0110

Paintball equipment, TippmanA5, M16 Apex Barrel, accessories, \$275 or sell separately. 464-7894

Office furniture, matching two-drawer file, two door, two shelf cabinets, \$40 each. 772-1989

Firewood, \$80 per truckload. 755-0050

Cedar fence posts. 682-7165

Ventless cast-iron gas logs, propane, manual, heats 1,000 square feet, \$550. 655-6348

50-inch Toshiba rear projection TV, glare screen, \$150 obo. 679-6259

Lfyetyme BBQ smoker, vertical/horizontal cook areas, \$1,200 obo. 679-8041

Fisher Price Intellitainer Activity Center; Leap Frog Learn and Groove Activity Center. 658-5855

Two video game chairs, sound and vibration, \$80. 714-3769

White Whirlpool oven, stove, above-stove microwave, \$500 obo. 337-9683

California 262 Thomas Organ, keys light up with rhythm section, needs work, \$200 obo. 971-0622

Air hockey table, 8 feet, electronic scoring, dual fans, \$50. 652-3943

Foray 15.4-inch business case, genuine leather. 227-0542

Callaway Big Bertha Irons, 4-SW, \$350; SIGMA DM-12-2 12-string guitar, \$250. 747-8598

Black DCM TF-400 home entertainment speakers, <http://www.dcmspeakers.com/manuals/TF400.pdf>, \$80 pair. 797-5282

Iron- and glass-top end table, \$75. garybraden@comcast.net or 797-5282

Garbage compactor, residential, brown, Whirlpool model TF4600XTPO, \$300 obo. 852-5595

Whirlpool heavy duty super capacity dryer, white, \$75. 830-9507 after 5 p.m.

Craftsman radial arm and table saws, local delivery, \$150 each, \$250 both. 464-9871

Ibanez Jazz Guitar, \$400; Ampeg 115T Bass Amp, effects pedals, \$400. 348-0391

37-piece Imperial "Candlewick" Crystal, cut glass bowls, silver-plated hollowware, trays, bowls, more. 883-8257

Broyhill kitchen hutch, glass sides/doors/shelves, \$425; wood kitchen table, four chairs, \$300. 975-1667

Kenmore washer/dryer, heavy duty, large capacity, all hoses, white, \$400 for pair. 975-1667

Golf 5 & 9 VFT Big Bertha Hawkeye wood covers, \$7 each. 797-7829

Pool table, 8 feet, slate top, cover, accessories, \$900. 489-7940

AKC English Springer Spaniel puppies, three males, 12 weeks old, Monrovia area. 653-7016

IBM Aptiva 166MHz PC, CD, monitor, \$40 obo; 486/66 PC, CD, monitor, \$20 obo. 828-5326

2005 Women's Fuji Finest road bike, 50 cm, intro road bike, \$250. 694-0034

AKC Doberman puppies, 6 weeks old, black/tan, red/tan, four females, \$500 each. 734-6898

Nintendo Wii console, Wii sports, \$275. 527-7230

Peavey Mark VIII bass amp head, 210TX, 410TX bass enclosures, \$600; Fender guitar, \$500. 636-2978

Fitz & Floyd Christmas decorations, Santa, Lamb, Doe cookie jars, \$15 each. 772-1989

Chihuahua puppy, male, 8 weeks old, black/tan, first shots, wormed, \$200. 497-6065

Peco leaf/cutting vacuum, gas powered, for rear mount on lawn/garden tractor. 509-7907

Two "Sweeney Todd" tickets, Jan. 11, 2 p.m. Row K, center. 772-3140

Golf club, LH seven iron, King Cobra SS-i, stiff flex, low kick, 105g, \$15. 797-7829

Vehicles

2007 Mazda3, gray, rear spoiler, sunroof, 30k miles, \$14,800 obo. 425-3727

2007 VW EOS, red, six speed, 20k miles, \$25,500. 694-0034

2006 John Deere riding lawn mower, less than 30 hours, 54-inch cutting deck, \$2,500. 337-7243

2006 SL55 Mercedes AMG, loaded, hardtop convertible, silver, 14k miles. 830-5999

2005 Honda ATV, TRX350TE Rancher, ES push start, digital front, back rack, \$2,800. 783-4326

2005 Dodge Laramie, four door, 4x4, leather, sunroof, 20-inch rims, 67k miles, \$16,000 obo/trade. 658-4733

2005 Nissan Armada LE, towing package, DVD, leather interior, 40k miles, \$18,500. 347-1674

2002 Toyota Tacoma, single cab, bed liner, \$7,750. 759-1917

2001 Kawasaki Bayou 300 4x4 four wheeler, red, less than 50 hours, \$2,500. 828-9798

1999 Honda Odyssey, hunter green, CD, power, cruise, tan interior, 115,700 miles, \$5,500 obo. 466-1432

1996 Corvette, removable top, 25 MPG, 72k miles, x10,500 obo. 723-8877

1993 Chevrolet Corvette Coupe, two door, 40th anniversary edition, 71k miles, \$12,000 obo. 656-0633

Wanted

Houses/offices to clean, available evenings/weekends, leave message. 777-8595

Electrical work to do, wiring houses, detached garage, adding/removing lights, switches, plugs. 468-8906

Cassette player for home audio system. 777-8229

Tickets to the Broadway Theater League's Chitty Chitty Bang Bang, Feb. 1. 603-1273

Very large dog crate. 883-0567

Found

Samsung AT&T cell phone, parking lot of Building 4203, Dec. 11; Toyota car key, Building 4200 area, Dec. 10; Blue knit "Nashville Predators" cap, Building 4200 lobby desk; black "fuzzy hat," Building 4200, first floor. 544-4680

Marshall marks 50th holiday season at reception

Marshall Space Flight Center team members take a break from work to celebrate the holiday season at the annual Center Director's Holiday Reception on Dec. 11. But the holidays weren't the only occasion celebrated. This year marks NASA's 50th anniversary. The agency was established Oct. 1, 1958.



In celebration of NASA's 50th anniversary

Fifty years ago this month, NASA Deputy Administrator Hugh Dryden and NASA Administrator Thomas Glennan agreed to use the name "Project Mercury" to designate NASA's plans to launch humans into space. On Dec. 17, 1958, Glennan used the name publicly for the first time.

During Project Mercury, the United States acquired its first experience conducting human space missions and its first scientific and engineering knowledge regarding how humans would react to spaceflight. The Mercury program proceeded in two phases: First came two human-tended, suborbital flights developed and launched by the Marshall Space Flight Center using modified Redstone Arsenal missiles; next followed four successful, human-tended orbital spaceflights launched using Atlas Air Force rockets.

Abe Silverstein, NASA's initial director of Space Flight Development, suggested the name "Mercury" in the autumn of 1958. Traditionally depicted wearing a winged cap and winged shoes, Mercury was the messenger of the gods in ancient Roman mythology.

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